
NORTHUMBERLAND & DURHAM
MEDICAL SOCIETY.

DECEMBER 8, 1881.

WELLCOME INSTITUTE LIBRARY	
Coll.	Wellcome
Coll.	
No.	

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.

THE THIRD MONTHLY MEETING was held in the Library of the Newcastle-upon-Tyne Infirmary, on Thursday, December 8th, 1881—the President (Dr. Eastwood) in the chair.

The following gentlemen were elected members of the Society* :—

Wm. H. Anderson, M.B., C.M. Glasg., Newcastle.

J. G. Black, M.R.C.S. Eng., L.S.A., Ingham Infirmary, South Shields.

Arthur Brumell, M.R.C.S. Eng., Morpeth.

H. H. Aitcheson, M.B., L.R.C.S. Edin., Wallsend.

F. J. Spranger, M.R.C.S. Eng., Newcastle.

Hugh Shapter Robinson, M.R.C.S. Eng., Newcastle.

The following gentlemen were proposed for election :—

J. R. Crease, F.R.C.S. Edin., L.R.C.P. Edin., South Shields.

James Oliver, M.B. Edin., Durham County Hospital.

The PRESIDENT said that it was his sad duty to interrupt the regular proceedings, by again bringing forward the subject of the losses which the Society had sustained by death since the last meeting. There was Dr. Denham, of South Shields—an old member of the Society, a regular attendant at our meetings, and present at the last one, who was highly respected in his own locality and beyond it. His appearance here was so familiar that every one must have known him. There was also Dr. Yeld, of Sunderland, who, though not personally so well known to the members of the Society, yet was highly appreciated for his ability, and who had a high reputation as Medical Officer of Health for Sunderland. A third member, Dr. Robert Wilson, of Alnwick, not often seen amongst us, had a great reputation in his own district, and was very favourably known to the Duke and Duchess of Northumberland. He was also the President-elect of the North of England Branch of the British Medical Association, and, as the Annual Meeting is to be held at Alnwick next year, his loss will be much felt. This is the longest list of deaths amongst the members of the Society in one month which I can remember, and all of them

* In the transactions for November, 1881, the name of Alexander Hepburn, F.F.P.S.G., appeared by mistake amongst the new members ; that gentleman did not seek election.

prominent men in their respective spheres, and I am sure you will join me in regret for their loss, and in sympathy with their respective families. There is also another death I have to mention—that of Dr. Gallwey, who, though not a member of the Society, was well known to many of you, and who has left a widow and children under distressing circumstances. Dr. Philipson has something to say about them, and an appeal to make to you in their behalf.

Dr. PHILIPSON said, in consequence of the kindness of our esteemed President, the standing orders had been allowed to be set aside, and thus he had been afforded the opportunity of bringing under the notice of the Society the circumstances respecting the death of Dr. J. H. M. Gallwey, of the Shieldfield, Newcastle. For some months Dr. Gallwey had been suffering from debility of system, and when in this condition he had unfortunately contracted typhoid fever, which had proved fatal on November 27th. The deceased gentleman's practice had been large, but unremunerative, and in consequence he had not been able to make any provision for his wife and family. Under these circumstances, three members of the profession, personal friends of the deceased (namely, Drs. Campbell, Scotland, and Adam Wilson) had initiated a subscription, and had arranged a committee, composed of the Revs. T. Talbott and J. Macphee, the vicar and curate of the parish of Christ's Church, Professors Gairdner and McLeod of Glasgow, and members of the profession resident in Newcastle, Gateshead, and the surrounding district. It was his pleasure to announce that a very hearty response had been accorded to the movement, and that a sum of £200 had been already obtained, and that it might be fairly anticipated that this would be considerably supplemented. It was his duty further to state that the committee had resolved that, whatever money was contributed, such would be devoted wholly to the relief of the widow and children.

Mr. SPEAR spoke of the high estimation in which Dr. Yeld was held, both by his brother Medical Officers of Health and by their department at the Local Government Board.

Mr. GAMMAGE bore his testimony to the high esteem in which Dr. Yeld was held in Sunderland.

The PRESIDENT read the following letter, which had been received from Mrs. Greenhow, in acknowledgment of the letter of condolence sent to her :—

“Newton Hall, November 30th.

“DEAR SIR,—On the part of my late husband's family and myself, I beg you to convey to the members of the Northumberland and Durham Medical Society sincere thanks for the kind sympathy

expressed in our bereavement. I would also assure you of our gratification in the Society's intention to include in its transactions a record of one who felt to the last a great interest in its working and success, as he did also in all the educational institutions of the town in which so large a portion of his life was spent. With renewed thanks for this gratifying appreciation and kindly remembrance,

"I have the honour to remain,

"Yours faithfully,

"ANNE GREENHOW."

PREVALENT DISEASES OF THE DISTRICT.

Mr. HENRY E. ARMSTRONG presented the following

Return of admissions to, and deaths at, the Newcastle Fever Hospital during the month of November, 1881 :—

	Admissions.	Deaths.
Smallpox	16	1
Typhus	4	1
Enteric fever	2	0
	<hr/> 22	<hr/> 2

One of the cases of smallpox was hæmorrhagic, and terminated fatally on the ninth day. No case of typhus has been admitted since November 21st.

Dr. DRINKWATER said that he had seen three cases of smallpox since the last meeting of the Society; they all occurred in the same house in Sunderland.

Dr. PHILIPSON mentioned the prevalence of erysipelas, idiopathic in its occurrence, in Newcastle and the adjacent neighbourhood. The cases he had seen had been of the head and face, and had been severe. Several of his professional friends had also referred to cases in their practices. He considered the epidemic was due to the vicissitudes of temperature that had been experienced during the past few weeks.

Dr. DAVIS (Sunderland) said that he had quite recently treated two cases of a similar nature.

Dr. DRINKWATER observed that he had had three cases.

Mr. GOYDER said that two cases of erysipelas had made application to be admitted into the Infirmary.

Mr. GORTON said he had lately seen some cases of erysipelas.

ANTI-VIVISECTION ACTS.

Dr. EMBLETON brought forward the following motion of which he had given notice:—“The Northumberland and Durham Medical Society, anxious for the honour and efficiency of the medical profession, desire hereby respectfully to express their strong and unanimous conviction, that the present severe restrictions on the practice of experiments on the lower animals are operating as a bar to the progress of medical science, and proving detrimental in many ways, alike to the public and the profession.”

Dr. EMBLETON, in moving the above resolution, supported it with the following speech, which he read:—Mr. President and Gentlemen,—From very remote times to the present day men have learnt the value of experiments on living animals for the purpose of unravelling the mysteries of nature, in their own interest and in that of their fellow creatures. Men of the highest character for religion and morality, as well as for science—men of the clergy even—have been enthusiastic experimenters; and from vivisection nearly all the great discoveries in anatomy and physiology, the only true basis of medical and surgical treatment, have resulted. Galenus, that great physician and philosopher, born soon after A.D. 100, and whose authority ruled the medical world for near 1600 years, saw the great importance of experiments on living animals, and by one of them it was that he made clear to the world that the arteries contained blood and not air, as had up to that time been believed. The divine Vesalius, as he was called, denied the presence of apertures in the septem ventriculorum which had previously been asserted to exist; one of his sayings was that “the simplest experiment on a living animal often teaches us much more of many things than the longest study of a dead body.” Both he and his friend and pupil Fallopius were most distinguished anatomists, and among the first to scrutinise nature with their own eyes. Michael Servetus, the celebrated theologian, who, as M. le Professeur Flourens cleverly says, did not burn Calvin, was the first, and Realdo Colombo the second, who discovered the pulmonary circulation. Cæsalpinus of Pisa also discovered it, and gave it the name it now bears; moreover, he maintained that the arteries, and not the veins, carried blood to the whole body. Fabricius de Acquapendente, *peritissimus anatomicus et venerabilis senex* says Harvey, in 1594, discovered and described the valves in the veins, but not their uses. It was our own immortal Harvey who, after having studied under Fabricius in Padua, discovered, in 1619, the uses of the valves of the veins and in the heart, and declared to the world the double circulation of the blood. All these men contributed more or less to this great and all-important discovery, and it was by the assiduous study of the living as well as

of the dead body, and by frequent vivisection of various animals that this result was obtained. Would any one, even the most strenuous opponent of vivisection, prefer that this precious item of science should be blotted out, or refuse to partake of the benefits which have accrued to mankind from the discovery of the circulation of the blood, though wrung as it has been from nature by the sacrifice of a number of otherwise useless dogs? After this triumph anatomical discovery went on rapidly, and the opinion of the master gave way before experiment and earnest observation. Aselli, in 1622, discovered, in a living dog, the lacteals. Pecquet, in 1648, discovered also in a dog the receptaculum chyli, and demonstrated that the chyle passed, not as had been supposed into the liver, but into the blood stream by the subclavian vein. Rudbeck and Thomas Burtholin, in 1650-2, detected by the same means the lymphatics. Our Glisson, Lower, and Wharton, explained the anatomy and physiology of the liver, pancreas, and salivary glands, and were all experimenters on animals. Haller, in 1747, by his experiments on animals localised irritability in the muscles and sensibility in the nerves; and showed that muscles contracted from direct stimulation and from the influence of the nervous centres through the nerves supplying them, and that their motion was not owing to the influence of the blood that they received from the heart. The growth of bone was studied on the lower animals by Hunter Duhamel. The learned and reverend Stephen Hales, Doctor of Divinity, "a pious and exemplary divine," overcame, in order to ensure truth, his natural repugnance to experiments on living animals, and gave to the world the results of his labours in his Statical Essays. At the end of last and the first half of the present century came Vicq D'Azyr, Rolando, Bellingeri, Walker, Prochaska, Charles Bell, Magendie, Mayo, Bouillaud, Flourens—men engaged in the eager study of the structure and functions of the nervous centres, and who made known to us the functions of the anterior and posterior pillars of the spinal cord, of many parts of the encephalon, and of the nerves in connection with them. Marshall Hall, by experiments on the lower animals, detected the reflex or excito-motor system, in which he was almost anticipated by Johannes Müller, also a vivisector. At a later date Claude Bernard, Beaumont, Pavy, and others demonstrated on the lower animals, and on man, the functions of the stomach, liver, and pancreas. Rutherford, Fothergill, and other experimenters have shown what are the actions of various medicines in the liver and intestines, on the heart and lungs, on the brain, spinal cord, and blood vessels. Brown Séquard, by his experiments and observations, has thrown a flood of light on the anatomy and physiology of the central nervous system. Last, but not least, Ferrier has by the same means completed the over-

throw of phrenology, and was only the other day striving, under barbarous legal restrictions and restraints, to demonstrate the exact localization of the various functions of the cerebral convolutions, when he was subjected to a criminal prosecution, which the whole profession rejoices to see has entirely broken down. Were it necessary a much longer list of the names of men, benefactors to mankind, who have experimented on the lower animals, might with little labour be made out. The above may suffice to establish the fact that nearly all the great discoveries in medical science have been made through experiments and observations on living lower animals, and to convince the sceptical that they are still essential to the progress of the science and art of medicine and surgery. Now let us ask ourselves for a moment what would have been, at the present time, the state of medicine and surgery if the experiments on living animals by the above-named illustrious men had never been performed; or, in other words, if anti-vivisectionists had had their own way since the commencement of the Christian era? Why, we should still have been immersed in the lamentable ignorance and darkness of those early times, blundering on with drugs, whose properties were almost unknown, in the treatment of the diseases of organs of whose anatomy and physiology we were ignorant, trusting in the efficacy of charms and talismans and vulnerable ointments compounded of mummy and the moss off a murderer's skull; and thrusting a stump after amputation into boiling pitch to arrest bleeding, and casting horoscopes, but without eyes to see our way out of any medical difficulty. The opponents of vivisection must be grossly ignorant of the immense benefits conferred, even upon themselves, by the practice they reprobate so vehemently. If they are not ignorant, then what new and strange form of madness is this that in these latter days has invaded the brains of good people that they prefer the lives of the lower animals to the health and life of men; that they would put a stop to the progress of medical knowledge and of humanity to save a few otherwise useless and superfluous dogs and cats; that they would take away from physicians and surgeons those very means by which they are to obtain the knowledge and skill required of them, and which is essential for the successful treatment of even their own diseases; that they should prefer darkness to light? Experiments on living animals are now conducted almost exclusively whilst they are under anæsthesia, so that pain is minimised, and cruelty cannot be said to exist. These experiments have no evil influence on those who perform them: guided as these men are by motives of humanity, the earnest desire for truth, and the acquisition of knowledge to be utilised for the health and longevity of man. Those who thus experiment are amongst the most kind-hearted, trustworthy, and honourable members of our profession; and yet, under the law

of 1876, they are treated as criminals. They must be licensed: their rooms must be licensed: they must be watched like burglars, and often by ignorant persons: quite unfitted to judge of the value of any experiment: and in every possible way they are lawfully hampered and thwarted. About eighteen months ago, a memorial, numerously signed, was presented to the Government for the limitation or abolition of vivisection. Among the names appended were those of twenty medical men—*rari nautes in gurgite vasto*! Twenty out of the 22,500 on the Register! Would that these, our brethren, had been better minded! Those who were present at the great meeting in St. James' Hall, in August last, and heard Professor Virchow's brilliant address, will recollect the decisive and unanimous vote of some 3,000 medical men, from all parts of the earth, in support of the practice of experimenting on animals for the benefit of man. Among the signatories of the above memorial were twenty soldiers—officers! What is the occupation of these gentlemen? Do they, like the physicians and surgeons, strive to heal the sick, to save life, and to prolong it? Have they not rather, in their "horrid trade of war," to do the very opposite of these things—to kill and mangle both lower animals and men indiscriminately in vast numbers, without anæsthesia or euthanasia of any kind? Who is there that is capable of forming the smallest idea of the sufferings of the dying and the wounded left on the field of battle—sufferings necessarily aggravated by exposure, removal, and operations, add to these the misery and privation entailed on their families and relatives, and the loss to their country, and the amount of pain and injury of every kind is more than tongue can tell or words express. Is it to benefit humanity that such horrors are inflicted and endured? Yet the twenty soldiers were scandalized at the idea of a few experiments on the lower animals, though performed under anæsthesia and planned with the sole object of alleviating human suffering. Verily they seem first to have swallowed the camel, and then to have strained at the gnat. There are other cruelties of daily occurrence that are not perpetrated by medical men; for instance, calves are repeatedly bled to make their flesh appear white when cooked. Sheep have their throats cut, and turkeys their tongues cut out and bleed to death. Game birds are slaughtered by hundreds for the mere love of shooting them, and many are wounded and die in pain. Rabbits are ferreted; hares and foxes are torn in pieces while living by dogs, in sport for men. Eels are actually skinned and cut in pieces while alive. Lobsters and crabs are boiled alive. And yet none of these appear to have moved the pity of the anti-vivisectors, whose compassion has been reserved for animals sacrificed for the advancement of science and the alleviation of human suffering. But enough has been said to show the inestimable value of experiments on living

animals to the progress of science, in the opinion of the medical profession ; and that the restrictions imposed lately by law on the performance of such experiments, will operate as a bar to the further advancement of medical knowledge. It is now high time for the medical men of the United Kingdom to speak out and to present respectfully to the House of Commons and to the Government their convictions that the present restrictions on vivisection ought to be relaxed so as not to banish the study of physiology from the country. I beg leave, therefore, Sir, to move the resolution already placed in your hands.

Mr. SPEAR seconded the resolution.

Mr. HENRY E. ARMSTRONG supported the motion.

The PRESIDENT suggested that a petition should be drawn up for presentation to the House of Commons through the local members.

The PRESIDENT then put the resolution, which was carried unanimously.

PATHOLOGICAL TRAY.

Dr. DRUMMOND, in Dr. McDowall's absence, presented photographs of Dr. McDowall's case of epithelial cancer of the frontal lobes of the brain.

Dr. OLIVER said : I have here, Mr. President and gentlemen, a specimen of dilated aorta associated with an hypertrophied and dilated condition of the heart, and imperfectly-closing aortic valves. They were removed from the body of a patient whom I had intended exhibiting at one of the former meetings of the Society, as the subject of traumatic aortic regurgitation. Admitted into the Infirmary nearly four months ago—suffering from great difficulty of breathing, cough and more or less pain in the chest—he told me that he had served in the army for the last twelve years, and that, with the exception of having suffered on two occasions from venereal disease, he had enjoyed good health. All the time he was a soldier he was in India. At the outbreak of the Afghan war his regiment, which was stationed among the hills of the North-West Provinces, was ordered into Afghanistan, and, as is usual, before such an order is executed the soldiers were subjected to a medical examination. Along with his fellow-soldiers he was examined by the Surgeon-Major of the regiment and pronounced to be healthy. He went through the campaign for six or seven months, experiencing many hardships and suffering much from privation, but with it all he had good health, until one afternoon in January of last year, when his regiment was ordered to take a position occupied by one of the hill tribes. He, along with the others, had to ford a stream

and ascend a steep incline. All this time the enemy was firing down on them, and the British in return were firing up at the enemy, and it was when he was in this position—with a cross-belt around his body, containing nearly eight pounds of ammunition, and carrying a Martini-Henry rifle—that he heard a slight crack within his chest, and experienced for a minute or two some little difficulty in his breathing and a sensation of faintness. He soon recovered, and joined in completing the assault. Some weeks after this his breathing became worse and he was sent into hospital, where he was told that he was suffering from cardiac disease. Soon after this he was invalided home much in the condition that we found him on admission. Dropsy set in towards the last, and cyanosis became marked. At the autopsy we found the heart hypertrophied and dilated. The first part of the aorta dilated and the aortic valves incompetent. One of the valves had its free edge roughened, and part of it deficient. I consider the incompetency of the aortic valves and the dilatation of the aorta due to overstrain.

Dr. OLIVER also said: I have here the cerebellum removed from a child four years of age. He was a healthy boy until about six months ago, when he had a fall. On the following day vomiting with convulsions set in, and since then he has been getting progressively worse. On admission we found him unable to stand or walk unless supported. In walking his feet were lifted high off the floor, and his heels brought down with a thud. Inco-ordination of movement became more marked as the disease advanced. The vomiting and convulsions lasted all through his illness, and he became extremely emaciated. He was blind, but there was no change detected in the discs. At the *post mortem* the lateral ventricles were found filled with some fluid, and there was also a large quantity of serum at the base of the brain. The brain itself was healthy. No tubercles were detected. The whole of the middle lobe of the cerebellum was occupied by a greyish red gelatinous looking mass, which Dr. Drummond, who has examined it microscopically, tells us is a myxo-glioma.

Dr. BARRON said that the ovarian tumours which it had been his intention to show that evening were so decomposed as to render their presentation impossible, but he hoped to read a paper on the cases at the next meeting.

Mr. GOYDER said: Mr. President and Gentlemen,—I have the privilege of showing you this pair of stencil plates—a little invention of my own for aiding the record of cases. They are male and female, and serve to show the position of injuries, diseases, and physical signs. A pencil traces out the entire figures when applied to the outer edge, and the bones, limbs, &c., are delineated by tracing out the cut edges of the plates. Bones of opposite sides

are drawn by reversing the plate, and the knee-joint (most often diseased and the most superficial) is also shown by placing in



apposition the corresponding ends of the femur, and tibia and fibula. A few lines are requisite in every diagram to render it complete. [The plates are made by Messrs. Brady and Martin of this town, and a sketch of diagrams accompanies each pair sold. The price is five shillings, in case, complete.] I wish to take this opportunity of saying how much I am indebted to the members of the staff of this hospital for the kind manner in which they have received them, and to Mr. J. P. Teale, of Leeds, who has kindly taken an interest in them. Injuries should be depicted in *red* pencil, diseases in *blue*, outlines and notes in *black*.

Dr. DRUMMOND said: The first specimen I have to show is an exceedingly interesting one: a glioma of the corpora quadrigemina, which has compressed the anterior extremity of the cerebellum, and pushed its way into the posterior part of the right optic thalamus. The specimen was removed from the body of a woman, aged 38, who was admitted into the Newcastle Infirmary on the 18th July of the present year. She complained of headache, vertigo, double vision, a staggering gait, and occasional attacks of vomiting. Subsequently blindness, intense double optic neuritis, nystagmus, double internal squint, complete inability to maintain the equilibrium of the body with a tendency to fall to the left side, and drawing of the head to the left were developed. She lost flesh rapidly, and became paralysed in a general way; however, the left side was always more paralysed than the right. Bed sores formed, and she died on the 12th of November. Dr. Drummond showed drawings of the brain showing the position of the tumour, also a

drawing of the left fundus oculi showing intense neuritis with a perfect ring of retinal hæmorrhages.

2. A portion of brain, showing a gumma occupying the white matter of the right hemisphere above the lateral ventricle, and opposite the union of the ascending with the middle frontal convolution; with a patch of softening extending from the gumma to the surface of the posterior part of the middle frontal and the adjacent portion of the ascending frontal convolutions. The specimen was taken from the body of a man, aged 32, who was admitted into Hospital for catarrhal pneumonia. He presented no symptoms of brain disease whatever until eighteen days after his admission, when he complained of headache, and soon afterwards had an epileptic fit, the exact character of which it was found impossible to ascertain; a few hours afterwards another fit occurred. Next day he had two more fits, and the day after three more. On the next morning it was observed that he was paralysed on the left side, the arm completely, but the leg only partially so; the face was drawn to the right, and the tongue protruded slightly to the left. The patient died on the day following. Dr. Drummond pointed out that the area of recent softening corresponded very closely with the arm centre which Ferrier had mapped out in the monkey. The fits were always followed by a period of paralysis, in which the muscles which had been affected with spasm were rendered powerless; this, Dr. Drummond thought, was an extremely important feature, as it served as an aid in distinguishing between idiopathic epilepsy and fits due to organic cortical disease.

3. A large, soft, and vascular glioma affecting the greater part of the right frontal lobe as well as a portion of the left. The patient, a girl, aged 3 years, from whom the specimen was taken, was under Dr. Luke Armstrong's care in the Newcastle Infirmary. She was admitted for a fungating tumour of the right eye-ball, which Dr. Armstrong wisely left alone, as he suspected brain disease. Dr. Drummond also showed a drawing of the brain and tumour.

4. Dr. Drummond said: I must claim the indulgence of the Society for a few minutes longer whilst I detail the facts in explanation of the specimens which I now show, viz., liver, portions of intestine, and a calculus. These specimens are from a case of intestinal obstruction which presented features of more than ordinary interest. The patient was a male aged 54, and sought admission into the Newcastle Infirmary complaining of constipation, fæcal vomiting, and suppression of urine: he was a brush-maker. He stated that he had been in perfect health until eight weeks before admission, when he first complained of constipation and pain in the abdomen; the pain was felt to be more severe after

meals, and affected principally the right hypochondrium. The obstruction had been complete for nearly three weeks. The patient was somewhat obese, and the abdomen, though full and rotund, was not distended; indeed, there was a striking absence of meteorism. A tolerably firm and nodular tumour could be felt occupying the position of the ascending and right half of transverse colon, that is, the right lumbar and upper part of epigastric regions. This fulness or tumour was taken to be fœcal. The tongue was furred and dry, and the pulse rapid and wiry, whilst, as before remarked, there was fœcal vomiting. A copious soap-and-water enema was administered with O'Beirne's long tube, which was passed up the colon to almost its entire extent. The injection was repeated in two hours (day of admission). At five o'clock in the afternoon of the same day, as no relief was afforded by the treatment already adopted, the patient was put under the influence of chloroform, and I passed my arm up the bowel to the extent of about 15 inches. On exploring the abdominal cavity with my hand I could feel the lower aspect of the tumour in the lower part of the right lumbar region; it no longer felt nodular and fœcal-like, but seemed to be smooth and somewhat firm and elastic. Dr. Arnison, who had seen the patient in the morning, again saw him, and it was decided to visit him in four hours. When the patient was seen again no improvement in his condition was detected, so Dr. Arnison decided to explore the abdomen.

Dr. ARNISON said that he made an incision about six inches in extent along the outer border of the right rectus muscle, and parallel to that muscle; the upper extremity of the incision was about two inches below the ribs. When the abdominal cavity was opened, it was discovered that the tumour or fulness felt through the walls was exactly in the usual situation of the ascending colon, and was covered by livid but shining peritoneum. This was taken for the intestine and opened, and was found to contain dark blood clot, having an offensive smell. The cavity was distinctly tubular in shape, and passed from the right inguinal to the right hypochondriac region. In the upper extremity of this cavity, and apparently closing it, was the large oval calculus which Dr. Drummond has shown. This was removed without difficulty. The patient at this stage was observed to be sinking, and died in a few minutes.

Dr. DRUMMOND further stated that the cause of the obstruction had been made out at the necropsy to be due to an aneurism of the hepatic artery, which, on becoming diffused, had passed down behind the mesenteric attachments to the neighbourhood of the cœcum, where it had pressed upon the ilium, just above the ilio-

cœcal valve and thus arrested the passage of fœcal matter along the tube. The calculus, which was a biliary one, had come from the liver, for the aneurism had absorbed a considerable portion of the under surface of that organ, the gall bladder having disappeared.

EXHIBITION OF PATIENTS.

Mr. GOYDER introduced, in Dr. Luke Armstrong's absence, a patient who had received a severe injury to the chest. The following notes of the case were handed to the Secretary:—William Rutherford, aged 14, residing at 59, Hector Street, Gateshead, was admitted September 28th, 1881, under Dr. Luke Armstrong's care, suffering from an injury to the chest. Patient stated that whilst "linking" waggons at the Hydraulic Goods Station, he was standing near a turntable on which a truck was rotating. He accidentally got between the metallic buffers of the truck rotating, and one coming up to the turntable, the trucks striking each other at a right angle. Patient's right chest was "jammed" between the two edges of the opposing metallic buffers. Upon examination the boy was found to be suffering from two vertical contused wounds of the right chest wall three inches long; blood was freely escaping, and air was sucked in at every breath. Upon placing the finger into the wound air entered freely into the pleural cavity with a noise; and it was found that about two inches of the sixth, seventh, and eighth ribs were smashed inwards. The finger, following the wound, entered the pleural cavity, but the lung had contracted and become collapsed, and could nowhere be touched. The ribs were very much comminuted, and some small portions came away. The skin covered the wound of the chest walls, and had apparently been pinched up by the buffers colliding. His general condition was one of collapse; small pulse, sighing breathing, and sweating, skin cold and clammy. The skin was drawn over the broken ribs after loose fragments had been removed and the patient had made a deep expiration, whereby more air was prevented from entering the pleural cavity. The wounds were dressed with oiled lint and covered with cotton wool, a flannel bandage girding the whole chest. The usual restoratives were also applied. Patient was dressed daily. A few days after admission, and when the traumatic fever consequent on the injury had passed away, the spinal end of the seventh rib ulcerated through the skin and became necrosed. This separated and came away on the 5th of November. The wounds healed slowly, and the patient got up for the first time on November 17th. He has since progressed well, up to the present time, December 7th. N.B.—No effusion ever occurred into the pleural cavity as far as percussion could detect. No pus was found in the pleura, and

now the lung has completely expanded and can be seen drawing the skin inwards, where the bony framework of the chest is deficient, at every inspiration. The percussion and auscultatory phenomena are everywhere satisfactory. The temperature only once reached 101° F.

Mr. PAGE said that he would reserve his patient until the next meeting of the Society, when he hoped to read a short paper on the case, and show a specimen.

Dr. DRUMMOND said he had intended to introduce three interesting brain cases: a case of cerebellar tumour, a case of cerebral tumour of long standing, and a case of locomotor ataxy with a left crus lesion; however, as the evening was so far advanced he would not do so.

ON THE CAUSES, PROPHYLAXES, AND TREATMENT OF POST PARTUM HÆMORRHAGES.

By J. F. LE PAGE, L.R.C.P.,

Fellow of the Obstetrical Society of London.

The treatment of post partum hæmorrhages must essentially ever be a source of anxiety to the careful obstetrician, requiring, as it often does, his greatest vigilance, courage, and skill. But, whilst by timely interference he may, in every case, avert a fatal issue, it is manifest that, however well defined, the treatment only equals in importance those measures, much neglected although they be in general practice, which are instituted for the purpose of avoiding altogether the evils which the treatment is intended to mitigate.

I am fully convinced, and that after an experience of 3,216 labours, that post partum hæmorrhage is, in a very large majority of cases, preventable; and that its causes, and the indications of its approach, are definite and unmistakeable. Too often, I trow, post partum hæmorrhage is regarded as a serious complication which it was impossible to foresee—an accident in short—instead of, what generally it really is, the natural outcome of conditions which the medical practitioner should, in justice to his patient, have recognized in time to avert so unfortunate a result.

I premise that it is also a fact that hæmorrhage after childbirth is treated far too frequently on general principles. Somewhat in this fashion: The cause—the uterus does not contract. The effect—blood pours away. The treatment—pressure on the fundus uteri; the administration of ergot; the application of cold; and this or other measures, which I should like to call empirical, failing, whilst time is passing and life is ebbing, as a last resource, perhaps, a consultation is sought, and the injection of, or spunging with, *Liquor Ferri Perchloridi* is decided on. The sequel—some die, whilst a bad recovery is made by many others.

It is often too much the fashion to rely on the aid, valuable although it be in other cases, of specialists, who, in these cases, at most can but make the best of an unfortunate state of things which should never have existed. The obstetrician, and more especially if he be a country practitioner, should be able to grapple, uncounselled and unaided, at least with this often appalling complication, for assuredly time is life.

Firstly, then—the signs and conditions which point to the probability of the occurrence of post partum hæmorrhage, and which should lead to an intelligent line of prophylaxis. If the patient has engaged her attendant two or three months before confinement

is expected, he should note at that time the state of her health. If she is of lax fibre and low nerve power the conditions are certainly present. Hæmorrhage does, however, of course occur in women who are not of a lax fibre and low nerve power, and the first signs of approaching danger must be looked for during the period of labour. At the bedside, then—having inquired, in the case of a mother, whether there is any history of previous complications, for there is a great tendency to recurrence—observe whether the progress of labour is unusually facile ; or tedious and unduly protracted, and lapsing into powerless labour, for hæmorrhage is very liable to take place when the second stage has exceeded the physiological limits. Note whether the pains commence with suddenness, for too much importance cannot be attached to the indications afforded by sudden jerking pains. If the intervals are long, that is to say, longer than is usual in the particular stage of labour, and the pains commence suddenly, at once attaining their maximum of intensity, and, either gradually subsiding, or, after a short duration of intensity, quickly passing off, and this character is allowed to subsist until labour is completed, hæmorrhage is all but certain to follow. Again, whether is the expulsive force derived mainly from the imperative reflex impulse to bear down, or from involuntary muscular contractions, for very considerable expulsive efforts may accompany an almost atonic condition of the uterus? And further, note the diathesis ; is it hæmorrhagic? Such are some of the conditions which predispose to hæmorrhage after parturition.

Then, *secondly*, as to prophylaxes. Our object is to obtain and maintain tonic uterine contraction, after the uterus is emptied of fœtus and placenta. But how often, especially in our large towns, and amongst the lower classes, we meet with women in whom the conditions which favour tonic muscular contraction are absent ; women of low nerve power and of lax fibre. In such cases it is my custom to administer daily, for some weeks before parturition, a pill composed of phosphorus gr. $\frac{1}{30}$, strychnine gr. $\frac{1}{30}$, and reduced iron grs. 2, and this is generally followed by very satisfactory results. Sometimes there is a history of previous hæmorrhages after labour in women whose appearance does not suggest the probability of hæmorrhage occurring. In some of this class we may trace the hæmorrhage to defective innervation ; some disorder of the nervous system existing which should engage our attention. In others an insufficient development of the muscular structures of the uterus is the cause. During the whole period of pregnancy the uterus, of course, grows. But what is *essential* to the growth of a muscle? Assuredly the use of the muscle. And so it is with uterine muscle, for the muscular structure of the gravid uterus cannot develope and fit itself for its ultimate effort without a training ; without regular exercise. It does, however, with wonderful

regularity, at intervals of a few minutes, during the whole period of gestation, contract, and so attains its full calibre and power in precisely the same way that every other muscle grows by use. We here see that if these contractions of uterine muscle are feeble, or almost absent, there is good evidence of an undeveloped and consequently weak uterus. The force of the muscular movements may, with very fair accuracy, be measured by means of the Gastrograph, and the power of the uterus in this way, with some amount of certainty, be computed. The precision of the indications afforded by the tracings may be verified by observing the variations in the loudness of the uterine souffle, which will be found to correspond with the periods of contraction and repose of the uterus. These contractions and accompanying changes in the souffle will also be observed when the uterus grows over a tumour. The tracings indicate the normal respiratory wave, and the deviations produced by foetal movements and uterine contractions. In the treatment of these cases iron and strychnine are of considerable value, and should be steadily continued for some time.

If the progress of labour is unusually facile, that is to say, if good headway is made with an expenditure of proportionately little uterine force, it is well to increase to some degree the resistance, by retarding the too rapid progress of the foetus, and to instruct the patient to desist, as far as may be possible, from voluntary efforts, so that the uterus may not be emptied before it is prepared to maintain a fairly firm contraction; and ergot should be given. Should the uterus, after protracted efforts, show signs of exhaustion, delivery should be speedily accomplished, but not without first subcutaneously injecting ergotine. The use of the forceps, without this precaution, within my own observation, is a common cause of post partum hæmorrhage. When the pains are of the sudden jerking character before referred to, I have found the most marked benefit quickly follow the administration of chloral hydrate with ergot.

Occasionally we meet with labour which progresses more by the aid of voluntary than of involuntary muscular contractions, where the reflex act is perverted; labour in which the abdominal muscles and diaphragm are the chief factors. Here again chloral and ergot act with great celerity in altering the order of forces. I make it a rule in every case, when my patient is of a hæmorrhagic diathesis, to administer a full dose of ergot near the completion of the second stage.

The very frequent use of ergot, I do not mean the indiscriminate use, is of undoubted advantage in parturition; and I am convinced, from repeated observation, that it not only greatly lessens the tendency to hæmorrhage, but that the process of involution is far

more perfect when the uterus is firmly contracted after labour; and the danger of puerperal fever is much diminished. Certain it is that *post mortem* examination reveals that the uteri of many mothers are abnormally large—in other words, that contraction and involution have been imperfect. And is not this condition of the uterus the fruitful parent of sterility, of menorrhagia, of leucorrhœa, and probably also of some troublesome disorders of the nervous system?

Thirdly.—The treatment. The obstetrician should, in every case, if possible before commencing his treatment, make himself fully aware of the precise cause of the hæmorrhage. It is not sufficient that it is *post partum*. For his treatment to be uniformly successful it must aim an attack at the exact condition which allows of the pouring away of blood. Undoubtedly, the orifices of uterine vessels are patent, but this may arise from one or more of various causes, requiring a diversity in treatment. Does it precede the third stage of labour, or does it follow it? Does a partial detachment of the placenta prevent a tonic uterus closing the orifices of the torn sinuses? Is a small portion of placenta or membrane responsible? Does a clot occlude the os? Does a spasmodic contraction, commonly called “hour glass,” exist? Does partial inversion of the uterus cause distension of the mouths of the uterine vessels? Does the uterus alternately attain firm contraction and partial or absolute distention? Does an alternate contraction of each side of the organ accompany a relaxation of the opposite side? Does a state of complete uterine atony exist? Has the cervix uteri been lacerated by the use of the long curved forceps before full dilatability of the os?

That every one of these causes of post-partum hæmorrhage requires a treatment strictly its own must be evident to every careful obstetrician.

If hæmorrhage *precedes* the third stage, the one thing to do, and to do as promptly as possible, is to introduce the hand and sweep away both placenta and clots, firmly pressing down the fundus uteri. Should a small portion of placenta remain attached to the uterus hæmorrhage will follow, provided that the placental substance prevents one or more vessels close to its attachment from being contracted, and the only rational treatment is the careful removal of the portion of placenta.

Much has been said and written on the paramount importance of removing every particle of placenta. From this view my own experience leads me to differ somewhat, and I contend that, provided an adherent portion of placenta be thoroughly broken down, and the uterus kept in a state of tonic contraction, the risk of pyohæmia and of septicæmia is no greater than in ordinary cases

where the uterus is left to itself. Here is a case in point :—M. M., of Bear Park, aged 36 years, was attended in her first two confinements by a midwife, and no complication, it was said, occurred. In her third confinement I found some fibrous adhesions of the placenta which it was necessary to divide. And in her fourth and last accouchement, on placing my left hand, as is my custom to do immediately after dividing the cord, over the uterus, I noticed that unevenness which is characteristic of a still attached placenta. Without waiting for hæmorrhage, I at once passed my right hand into the uterus, and found about one-half of the placenta united thereto by bundles of fibres, which resisted a very determined but cautious effort at division. Having fully satisfied myself that separation with the fingers, or even between the nails, was impossible, I proceeded, with as much speed as practicable, to strip bundle by bundle between thumbnail and first finger of the softer portions which invested it. They were then left to their fate, whilst the hand was removed, pressing before it the *debris* of placenta and clots of blood. I then kept my patient under the influence of ergot for three days. She made a perfectly good recovery; neither hæmorrhage nor anything unfavourable supervening.

Leaving the many other but less common causes of post partum hæmorrhage, I pass on to consider that hæmorrhage which is at once the most appalling to the parturient woman, and the most distressing to the physician—hæmorrhage from atony of the uterus.

The child is born; all seems well; the poor victim is happy and cheerful, for, as she understands, the worst is over. But in a few seconds how prodigious the change! Her face is white and cold; her wrists are pulseless; her half-open mouth adds ghastliness to the half-closed eyes. A yawn. An occasional deep inspiration. Life is almost gone, and we have to do with the very article of death. Such is the state of things the accoucheur is called upon instantly to face, with no time for deliberation as to the greater expediency of this or that treatment. An exigency demanding instant intuitive action.

(A surgeon in London, some fifteen years since, met a case of this kind by kneeling in prayer at the bedside. His patient died, and, if I mistake not, his name was erased from the register.)

Now, a difficulty confronts us, and that is to decide on the order of means. What shall be the first measure, and what the second, and so on? So very many things may be done that we find ourselves in a sort of *embarras de richesse*. We may apply cold over the abdomen, with cloths, or poured from some height; cold to the vulva; pressure on the fundus uteri, with manipulation of the uterus; we may introduce the hand and irritate the uterus inter-

nally ; irritate the nipples ; inject ergotine subcutaneously ; hypodermically inject ether over the abdomen ; administer brandy ; inject cold water into the uterus ; introduce Barnes's bag, and distend it with cold water ; inject warm water into the uterus ; apply warmth to the lower part of the back, to determine blood to the spinal cord ; apply warmth and cold alternately to the abdomen ; use galvanism or electricity ; compress the abdominal aorta ; compress the bleeding uterine vessels ; apply ligatures to the extremities ; transfuse ; auto-transfuse with Esmarch's bandage ; inject, or sponge the uterus with, perchloride of iron.

But which first? Dr. Meadows says : "brandy should at once be poured down with an unsparing hand;" and Dr. Gream, and indeed most authors, advise the same treatment. In this I cannot agree with them, for brandy is a stimulant to the action of the heart, and it should be self-evident that it is worse than useless to attempt to pump into the large vessels the remaining blood whilst it has a straight run out. For what purpose has nature instituted syncope? When syncope accompanies hæmorrhage its very distinct intention is that of diminishing the supply of blood to the bleeding part. Then it is hardly logical to use first those measures which are certain to increase that supply. Our very *first* efforts should be directed to arresting the loss of blood, and, having accomplished that object, we should then rally the forces of nature. We have to do with the immediate effect of a sudden and excessive hæmorrhage, an effect which is different to that which follows the flow of blood from any other post partum cause. When hæmorrhage has continued, more or less, for some hours, and our patient is in a state of extreme prostration, almost pulseless, throwing about her arms, and entreating for more air, brandy, in some cases by the half pint, is certainly of value ; but I entirely dispute the propriety of its administration when we have to do with atonic hæmorrhage, before we have rendered impossible the continued pouring away which stimulants to the heart's action must cause. But there is another reason why stimulants of the class to which brandy belongs are not indicated. We have syncope with its accompanying unconsciousness, and this syncope is caused, not by intrinsic feebleness of the heart's action—for both the failing heart and the syncope are results of the same cause—but by the absence of the stimulation of the cerebral functions, which is effected by the usual flow of arterial blood through the vessels of the brain ; and this is the *direct* result of the hæmorrhage. So that, whereas syncope is, under other circumstances, the result of failing or feeble action of the heart, the syncope of sudden and excessive hæmorrhage is the immediate result of cerebral anæmia. In what I shall call cardiac syncope, a heart stimulant, such as brandy, *is* indicated, for the syncope is the effect of the heart's

failing action, producing a condition approaching stasis in the cerebral vessels, and the cerebral functions are no longer kept in play by their accustomed and necessary stimulant, oxygen; although the vessels may be fairly full of blood. A *vis a tergo* is all that is required; and brandy, when turned into cardiac force, supplies the necessary impulsion.

How different is syncope from cerebral anæmia. The immediate cause is withdrawal of blood from the cerebral vessels, and the rational treatment is the redistension of the vessels—both of the brain and great vital tracts—with blood. But how can we do this, even by stimulating the heart's action, when the blood pressure is little more than a negative quantity?

The treatment which I have adopted, and most confidently recommend as both sound in principle and effective, is transfusion, be the blood derived from another subject or from the patient's own body. The almost instantaneous effect is stimulation, by its natural stimulant, of the heart's action, quickly followed by a supply of oxidised hæmoglobulin through the cerebral capillaries. Consciousness returns, the cerebral functions are exercised, and the nervous system is no longer dead to stimulation. When death does occur, it is, in my belief, not generally death by syncope, but death by asphyxia; for is it not evident that if there is a very considerable diminution in the number of red corpuscles, and almost a total arrest of the current, the quantity of oxygen absorbed must be vastly below that required by combustion to form an equivalent of animal heat sufficient to sustain life? And whilst this goes on the blood becomes more and more charged with incompletely oxidised substances.

Cold water is always at hand, and the first thing I do *in these extreme cases* is, having placed my patient on her back with her head low, to splash it freely over the vulva and abdomen. If this is not *at once* followed by uterine contraction, I, without waiting, introduce my hand, passing it straight through any clots which occupy the cavity of the uterus, without disturbing them more than is necessary, and with thumb and first finger compress the abdominal aorta by pressure against the lumbar vertebræ. Then give ergot by the mouth, or inject ergotine subcutaneously, not expecting any immediate effects, for in these cases the drug does not generally act until the vital power has to a considerable extent reasserted itself, but because its action on the whole unstriated system of muscles will be manifest as soon as the required conditions are present. At this stage we may, if occasion requires, hypodermically inject ether over the abdomen, and *firmly* bandage the legs and arms. The effect of this auto-transfusion being that the circulatory system is very materially lessened in extent, and the blood which the extremities contained is utilised in those parts of the system which are more essential to

life; the circulatory and nervous centres. Our patient is now in comparative safety, and brandy may be freely given, but not without very great caution. Its effect must be watched, and the arm bandages removed as soon as pulsation can be felt in the temporals. By this time, in nearly every case, the uterus will have contracted and forced the hand from its position over the aorta. This contraction should be assisted by rather forcible manipulation of the uterus, and pressure on the fundus, whilst, at the same time, the hand is so arranged within the uterus as to bring down before it the clots which occupy the cavity. When the contraction is imperfect I have found injecting, or spunging the uterus with, warm water exceedingly effective. In some few cases the injection of perchloride of iron may be necessary, but I maintain that its use, with the risk of embolism, pyohæmia, and metritis, should be restricted to those cases where all vital force is spent, and excitants to contraction are useless, as the diastaltic system is practically dead. Undoubtedly the perchloride is of the utmost value in some few cases, and these I believe will be found, almost exclusively, amongst women who, previously to confinement, were in a bad state of health, and whose blood is deficient in the components of fibrine.

In the case of one patient, the application of cold producing no immediate effect, I passed my right hand into the uterus, felt for the part to which the placenta had been attached, and finding it was the anterior surface, with some little force pressed in an outward direction. My assistant then, with both hands, grasped my hand through the abdominal parietes, involving in the hold the whole placental surface. My hand was then carefully withdrawn from this lesser *cul de sac*, and the remainder of the uterus cleared of the clots it contained. The hæmorrhage was completely controlled, notwithstanding that the uterus was absolutely atonic. So far as appearance went, my patient was dying. I firmly bandaged her legs, and injected ergotine hypodermically over her abdomen. She soon rallied sufficiently to be able to swallow, and brandy was then freely given. In the course of about fifteen minutes the uterus suddenly slipped from my assistant's grasp, and continued so fairly contracted that a pad and tight bandage was all that it needed. The woman made a good recovery, that is, as good as the extreme anæmia would admit of.

The treatment I have adopted in this form of post partum hæmorrhage, and with very considerable success, is based on the principle that the *immediate* arrest of the hæmorrhage is of the first moment, and that the recuperation of nature's forces, although a matter of very great, is still one of secondary importance.

It is impossible to resist the belief that, with bold and prompt treatment, laid on definite lines, death as a direct result of post partum hæmorrhage should never occur.

CHRONIC BRONCHIAL CATARRH.

By C. GIBSON, M.D.

The mucous membrane of the whole respiratory tract, from the cutaneous surface to the pulmonary vesicles, is susceptible of catarrhal disorder. Chronic bronchial catarrh, however, usually affects both lungs at the same time, and especially the middle and lower portions of them, the medium and larger bronchial tubes being most commonly affected. It deserves recognition, moreover, that constitutional fever is usually absent in these affections, and that when long continued they are commonly associated with emphysema.

Chronic catarrhal disorders of the respiratory mucous membrane do not of themselves effect a large mortality. They produce a great amount of discomfort and of injury, however, which show themselves often in other organs. And it must be remembered that the actual cure of chronic bronchial catarrh by the agency of the physician is really the exception rather than the rule in our own times.

Again, chronic bronchial catarrh occurs as a primary, genuine, idiopathic, affection. It frequently occurs as an affection secondary to diseases of the lungs, as acute bronchitis, and likewise to non-pulmonary diseases. It exists, from time to time, as cause and as effect in mechanical disturbances of the circulation, in hypertrophy and dilatation of the right ventricle of the heart, insufficiency of the mitral valves, fatty degeneration of the muscular structures of the heart, especially those of the right ventricle—the outcome probably of imperfect oxidation consequent upon sustained contact with impure blood. As a primary affection it is frequently associated with congestion of the bronchial membrane without any appreciable inflammation whatever. Sometimes, however, the mucous membrane is actually exsanguined. The bronchial discharge varies greatly, muco-purulent, or mucous of different combinations and qualities, or serous with few cellular constituents. The effect of contact of these secretions upon the bronchial tubes themselves is often considerable: hypertrophy or atrophy of the mucous membrane, abnormal conditions of its muciparous glands, &c., or even disintegration of the bronchial mucous membrane and of the walls of the bronchi beyond. By long-continued catarrhal disease, the calibre of the bronchial tubes sometimes becomes greatly altered; dilatations and contractions showing themselves, it may be irregularly. Occasionally the tubes show very considerable dilatations, the contractile textures around them becoming thence actually unable to expel completely the secretions which are therein accumulated. This condition of things

—this state of bronchiectasis—has two consequences, which, in fact, become of diagnostic value : 1st, the sputum expectorated is fœtid, commonly ; 2nd, the fœtid muco-pus which is discharged has within it new vitalised forms, which are doubtless the result of septic changes in the diseased secretions.

It may be accepted, then, that the anatomical lesions, special to chronic bronchial catarrh, are not well marked ; and yet it is difficult to recognise the presence of pus-corpuscles in the sputa without recognising at the same time the presence of inflammatory action. Commonly, however, there is not even manifest engorgement of the mucous membrane, and desquamation of the epithelium is often the only visible microscopic lesion. Here, at least, the catarrh may be regarded as a lesion of secretion.

The state of the therapeutics of chronic bronchial catarrh is very unsatisfactory, both in aim and in result. Constitutional remedies have been for the most part relied upon, and these have been of varied quality. The local treatment has commonly resolved itself into the employment of counter-irritants and sedatives to the skin of the thorax, and sometimes the direct application of medicinal substances to the tracheal and bronchial mucous membrane. Dr. Horace Green, Dr. Hughes Bennett, and others have carried a charged probang through the larynx to the trachea, and even to the bronchi themselves ; and it is said that the applications have been from time to time highly beneficial. Doubtless these applications have been skilfully made, and their employment has been justified by the exigencies of the cases so treated. But it is not my purpose to resuscitate this bold and dangerous mode of treatment. Local applications can be made much more safely, much more simply, and quite as effectually. Then fumigations have been employed, inhalations of so-called pulverised fluids, and actual injections into the bronchial tubes. In the face of all this, it is curious to note that the possibility of conveying medicated substances to the bronchial membrane by inhalation is actually denied by distinguished medical authors, and even by intelligent physicians in this part of the world, where the non-malignant melanotic lung of miners is to be found so frequently. The maleficent agency of the dust inhalations in certain other industrial avocations appears also to be forgotten in this denial. These, indeed, are vagaries in scepticism.

Although individual cases may present peculiarities which demand recognition, it is manifest that the first broad indication in the treatment of chronic bronchial catarrh is to remove the patient from conditions directly surrounding him which are inimical to his bodily well-being ; change of residence, change of mode of life, and so forth. And when this indication has been fulfilled the constitu-

tional and local treatment special to the disease may be at once pursued. The employment of turpentine by inhalation and by deglutition, copaiba, ammoniacum, senega, benzoic acid, perchloride of iron, ergot (an agent of great power and usefulness), carbolic acid (as an antiseptic), perhaps chloride of ammonium, perhaps cantharides, counter-irritants to the surface of the chest, perhaps compensative discharges (as by the insertion of a seton somewhere upon the chest or the arm), or the inunction of croton oil, &c., perhaps emetics, as in bronchiectasis (and then apomorphia is the best agent, sometimes) perhaps, stimulants and tonics. Ipecacuanha is rarely useful, and tartrate of antimony never. Perhaps astringents, as acetate of lead, tannin, &c. Narcotics are sometimes but rarely useful. Finally, and most importantly of all, *inhalations* of nitrate of silver, sulphate of copper, sulphate of zinc, alum, &c.

A man, æt 45, had been affected with bronchial catarrh for many years. In March he suffered more severely than he had ever suffered before. Pain in the right chest was then complained of, and some dyspnoea on exertion, and on assuming the horizontal posture. The pulse was quickened a little, and some thirst was present. The urine was high coloured, acid in reaction, and on cooling deposited lithate of ammonia largely. The skin (in temperature and in diaphoresis) differed little, if at all, from the normal state. There was no appreciable departure from the state of health in the gastro-intestinal functions, and the patient took his food well. Nevertheless he drooped, losing both strength and flesh gradually, yet steadily. Auscultation showed that the lungs admitted air freely. In the course of two or three weeks, however, the usual vesicular, breezy, respiration was everywhere obscured by loud moist râles; expectoration of thin muco-pus was abundant. By and bye flushings came over the patient every evening, and these were occasionally followed by free diaphoresis. At night, too, on waking from short sleeps, he was again and again bathed in sweat. Auscultation now detected tubular breathing in the neighbourhood, but beneath the right nipple, and in the same locality pronounced vocal resonance. In a short time the bronchial breathing here became louder—became cavernous, and the bronchial voice was transmuted into pectoriloquy. The expectoration was abundant, thick, yellowish, charged with air bubbles, and foetid—conveying the impression to the gentleman who had charge of the case, that gangrene of the lung was present. It was at this point in the patient's history that my connection with the case began. The progression of the disorder, and the general appearance of the sufferer were against the conclusion that tubercular disease was present. The position of the pain in the chest, and of the cavernous respiration, and of the pectoriloquy, and the

undecided character of the constitutional symptoms also bore testimony against the presence of a vomica ; while the odour of the sputa was wanting in that peculiarly disgusting quality which holds so distinctly in pulmonary gangrene. In order to obtain still further information for a secure diagnosis, a quantity of sputum was boiled in caustic soda and carefully examined by the aid of the microscope. This examination failed to detect any elastic pulmonary fibre whatever ; while a portion of recently ejected phlegm was likewise examined, and was found to be swarming with living rod-like bodies. There was in this case, also, but fitfully, slight cyanosis. The diagnosis, thus fairly complete now, was that bronchiectasis existed in the right lung ; that there was no vomica and no gangrene ; and for the rest, that the case was one of chronic bronchial catarrh. Upon this opinion the treatment was systematically carried out. An emetic was at once ordered, consisting of gr. $\frac{1}{8}$ of muriate of apomorphia—the usual forms of emetic being excluded for special reasons. This was administered subcutaneously, with the effect of discharging in a few minutes a large quantity of foetid muco-pus, to the great relief of the patient. In the next place, carbolic acid inhalations were prescribed in a 4 or 5 per cent. solution ; and, to be taken into the stomach, m x v each of balsam of copaiba and of oil of turpentine. The patient was ordered to remain in his bedroom, and to have a simple but generous diet. The emetic was repeated from time to time ; and the carbolic acid inhalations and the mixture of turpentine and copaiba were continued, each at the rate of three times a day. In a week the patient was greatly improved—the physical signs, even, were much less pronounced, and the offensive quality of the sputa had entirely disappeared. Now inhalations of finely-powdered nitrate of silver, suitably diluted, were substituted for the carbolic acid, and cubeb powder took the place of the copaiba and turpentine mixture. After taking the cubeb powder for a short time the stomach of the patient rebelled, and the inhalations of nitrate of silver only were persevered with. The patient progressed steadily—manifesting improvement day by day ; so that at the end of six weeks from the time of first using the inhalations, the catarrh had entirely passed away, and the patient wore the appearance of robust health.

The next case, and the only other case to which I shall now refer, was that of a gentleman, æt 54, who had repeatedly suffered from bronchial catarrh. In the autumn this gentleman—always delicate—took one of his bad colds, with frequent cough and expectoration of thick, frothy phlegm ; and for some weeks was his own doctor. The little febrile movement, which ushered in the catarrh, soon passed away ; but the cough continued, and with it there was profuse expectoration of muco-pus. The general health began seriously to suffer. The body became thin and feeble ;

the sleep was unrefreshing; and diarrhœa frequently recurred. In this patient the physical signs indicated some condensation of tissue at the apices of both lungs. There was a history of phthisis in his family, and altogether the case was most unpromising. After attending to the condition of the digestive organs and the establishment of a suitable dietary, tonic medicines were ordered for this patient, and inhalations of finely-powdered nitrate of silver. These inhalations were not at first well borne: the cough became more troublesome, the expectoration more profuse, and there was a feeling of great discomfort, which was referred to the whole chest. The inhalations of nitrate of silver were therefore withheld for the time being, and those of muriate of morphia—in doses of gr. $\frac{1}{10}$ several times a day—were substituted. This change of treatment was exceedingly grateful to the patient, and was continued for more than a week. The catarrh, however, was not greatly relieved either in the quantity or the quality of the fluid expectorated, and the inhalations of nitrate of silver were resumed. Happily, they were now borne without the slightest irritation either of the larynx or of the bronchial tubes, and were unceasingly persevered in for four weeks. The tonics, varied in strength and quality from time to time, were continued; food and alcoholic stimulants were liberally given. At the end of four weeks, very considerable improvement had been effected. A change of abode was now made, and after a six weeks' sojourn in the South of England—during the greater part of which the inhalations of nitrate of silver were continued—the patient returned home altogether free from the catarrhal disorder, which appeared so capable of destroying his life.

These recitals have been purposely made as simple and as brief as possible. Cases, however, could be multiplied and more systematic reports could be readily introduced. But the aim of this paper has been to introduce to the Society the principle of treatment by inhalation of dry powders, and to afford assurance that the application of drugs, by direct contact with diseased bronchial membranes, can be easily and safely effected; and that such treatment is competent to the production of results which probably no other means are capable of effecting.

MEMBRANOUS POLYPUS OF THE CERVIX UTERI.

By C. GIBSON, M.D.

For the sake of simplicity, all tumours which are attached to the uterus by a pedicle may be regarded as polypi.

In the body of the uterus there are principally two forms of benign polypus found, viz., the soft or mucous, which has many varieties, and the fibrous or muscular, which is an extension of the proper tissue of the uterus, covered by a corresponding extension of the lining membrane of the organ. In the neck of the uterus one other well-recognised form is superadded, viz., the glandular—constituted by the glands of Naboth. In addition to these, however, several varieties are mentioned—the fibrinous, either from a coagulum in utero, or from an aborted ovum; the vascular, from varicosity of the submucous blood vessels; the placental, which again results from detained and variously altered placenta. The fatty polypus may be regarded as a degenerated fibroid.

The polypus which I now desire to describe does not belong to any of these varieties; yet it is strictly a benign polypus, springing from the internal surface of the cervix uteri.

Some years ago, I saw a patient who had been out of health for many months. Her age was about 50. She was stout, but went about, in the general management of her domestic affairs, with an effort. There was a sustained feeling of indisposition in the patient, and exertion soon produced fatigue. This lady was keenly susceptible to the influence of cold, and when under its influence she became affected with cervical uterine leucorrhœa. There was present aching of the lower part of the back, around the hips, and down the thighs; but there was no other localised complaint, excepting only slight tenesmus on defæcation and on micturition. The grand climacteric had been passed; but the later catemenial periods were marked by much discomfort—even by suffering, and by great irregularity in the character and in the quantity of the discharge. On examining the uterus, per Vaginam, with the finger, the os uteri was found to be much dilated, and immediately within it a rounded body was reached by the examining finger. The cervical walls were soft and even externally. No blood issued on freely touching the intra-cervical foreign body. By the aid of the vaginal speculum the presenting tumour was seen to be evenly rounded in outline, dark coloured, and completely filling the canal of the cervix uteri. Nothing like blood or puss covered it. On pressing the uterine probe upon this dark body, it became deeply indented, and by onward pressure receded

within the cervical canal. On withdrawing the probe the tumour resumed its former site and appearance. Laminaria tents were passed through the cervical canal, and free dilatation of it was effected. And now, on making digital and ocular examination, the tumour was nowhere to be found; and no bearing down on the part of the patient and no pressure on the hypogastrium could force the growth again into view. The finger, indeed, could feel an uneven condition of the anterior wall of the cervical canal, but no other abnormality could be detected. The cervix was allowed to contract upon itself again, and on the fourth day, after the examination just referred to, the tumour was again found in the cervical canal. It was again examined by the aid of a probe and found to have a broad attachment to the anterior cervical wall, and to be gradually lost in the surrounding parts. Excepting for the points of attachment, the tumour did not appear to have, exactly, any of the characters of the polypus formed by an enlarged Nabothian gland. It was concluded, then, that it was nothing else than a rounded fold of mucous membrane—a prolapse, in fact, of hypertrophied-cervical membrane. On this assumption, a line of treatment was determined upon and carried out. The wall of the cervical canal, after being dilated, was freely swabbed with the stronger solution of perchloride of iron, and a dossil of lint, saturated with glycerine, was placed in the canal for 24 hours. This operation was repeated on three other occasions, after which neither probe nor finger could find a vestige of the tumour. On seeing this patient three weeks after the last applications, the cervical canal was found to be quite free from any abnormal growth, and the discomfort and the tenesmus had quite disappeared. Eighteen months ago this patient again came under my observation with symptoms nearly identical with those already referred to. Some persistent leucorrhœa only was superadded. On vaginal examination a tumour was found, similar, in many particulars, to that which had been found before. It was, however, much larger and hung down from the uterine orifice into the vagina. It had the form of a pear, and was attached to the anterior wall of the cervix uteri. The growth was now summarily dealt with: a loop of fine wire was passed over the polypus and carried as nearly as possible to the points of its attachment to the cervical wall by a silver tube, and tightened. Then, with a see-saw motion of the wire, the attaching textures were cut through and the tumour was removed. Although there was almost no bleeding, the stronger solution of perchloride of iron was freely applied to the cut surface as a matter of security. In two days the patient was well, and has continued so up to the present time. On examination—after being macerated in a solution of common salt for forty-eight hours—the tumour was still found to be pear-shaped. Its walls enclosed, and

were held together by, a tolerably firm connective tissue ; and yet, by an effort, the envelope could be almost flattened—a nodule only of the connective tissue, more dense than the rest, remaining on the surface of the envelope after the other portions had been unfolded.

In another case of a like nature the tumour was small, and was easily recognised—the cervical canal being large and the uterus very low in position. The patient was still menstruating, and was only 37 years of age. In this case the strong solution of perchloride of iron was repeatedly applied to the abnormal growth, and to the circumjacent mucous membrane. These applications were followed by the introduction of an intra-uterine galvanic stem pessary. The pessary was worn for some months, and from the beginning to the end of treatment vaginal injections of cold water were employed. The result was entirely satisfactory.

This affection is produced, I think, by engorgement of the mucous membrane of the cervix uteri. It clearly has no necessary connection with the dilatations and contractions of the cervix which are associated with parturition, inasmuch as neither of the patients referred to had borne children. The mucous membrane, however, becomes relaxed by recurring catamenial plethora. The relaxed membrane folds upon itself ; tenesmus is thence set up, as upon a foreign body in the cervical canal, and the loosened membrane is gradually forced downward. Then exalted nutrition follows upon the recurring plethora. The hypertrophied membrane becomes more and more an irritating body, and the polypoid character of the outgrowth becomes more and more distinctly developed with the lapse of time.

The literature of uterine affections does not present—so far as I am familiar with it—any well-marked cases of the kind now delineated. Attention having been directed to the subject, however, and the peculiarities of the morbid growths pointed out, cases will almost certainly be henceforth observed from time to time. I propose that the tumours be grouped under the name of “Membranous polypi of the cervix uteri.”

THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF THE SPINAL CORD.

By BYROM BRAMWELL, M.D., F.R.C.P., Edinburgh.

[CONTINUED FROM PAGE 96.]

Presuming that the symptoms suggest disease of the spinal cord, the first step in the diagnosis is to determine whether the lesion is actually situated in this part of the nervous system.

Typical cases present no difficulty. As the result of experience—clinical examination verified by *post-mortem* examination—we know that, certain symptoms, or rather certain combinations of symptoms, indicate a spinal lesion. But cases are not always typical, and the most experienced may sometimes hesitate before forming a definite opinion.

Now, the only true and scientific method of coming to a correct conclusion is to make a thorough and accurate examination of all parts of the nervous system; and then to draw a logical conclusion from the whole facts of the case. Due weight must be given to individual symptoms; and it is here that experience and a large practical acquaintance with disease give such essential information.

In some cases we have recourse to the method of exclusion. We endeavour to satisfy ourselves that there is no other lesion either above or below the cord (*i.e.*, no peripheral or cerebral lesion) capable of producing the symptoms.

Cervical paraplegia, peripheral paraplegia, spinal hemiplegia, and spinal monoplegia may be instanced as some of the cases in which the difficulties, I have just been alluding to, may occur.

Cerebral paraplegia.—This rare condition may be caused by a lesion in the pons or medulla. Derangements of the parts supplied by some of the cranial nerves will almost certainly be present; and when present are quite distinctive. Cerebral paraplegia may also result from two separate and distinct cerebral lesions, as, for example, two independent hæmorrhages in the motor areas of both hemispheres. There is a history of two distinct attacks of hemiplegia. The lower facial muscles and tongue, of the side most recently affected, will probably be paralysed. There is usually some disturbance of the mental condition, loss of cerebral control, &c. The condition of the reflexes corresponds to a cerebral lesion; the superficial reflexes are abolished or diminished, the deep reflexes exaggerated.

Peripheral paraplegia.—Where a peripheral lesion is so situated as to interfere with the motor nerve supply of corresponding parts

on both sides of the body, paraplegia may result, and the case may be mistaken for one of spinal cord disease. A tumour pressing upon the chorda equina, or a cancerous tumour within the pelvis pressing upon the great nerve trunks which supply the lower limbs, are good examples of such lesions. In cases of peripheral paraplegia severe pain is generally a prominent symptom; indeed, the term "*paraplegia dolorosa*" is almost equivalent to paraplegia resulting from a peripheral lesion. A tumour pressing upon the chorda equina irritates the sensory fibres of the posterior roots; a tumour within the pelvis produces pain by irritating the sensory fibres of the sensory-motor nerve trunks. In many of these cases the condition, which I have previously described under the term *anæsthesia dolorosa*, is also observed. Irritative phenomena, cramps, spasms, &c., may affect the paralysed muscles. The reflexes in the paralysed muscles may be at first increased, but are usually diminished or abolished. The affected muscles become markedly atrophied. The diagnosis of peripheral paraplegia must be based upon (1) the nature of the symptoms, and (2) the fact that there is evidence of local (peripheral) disease, such as caries of the vertebræ, a tumour within the pelvis, &c.

Spinal hemiplegia.—This condition has already been alluded to in speaking of unilateral lesions. It usually results from traumatic injuries or compression of the cord. Occasionally it is produced by a lesion arising within the cord itself, such as myelitis, *polio-myelitis anterior acuta*, or an intra-medullary tumour.

Spinal hemiplegia is easily distinguished from cerebral hemiplegia, by attention to the following points:—In spinal hemiplegia the face and tongue are not paralysed. There is no derangement of the cerebral functions. Anæsthesia is generally much more marked than in cerebral hemiplegia, and is situated on the opposite side to the motor paralysis. The skin on the paralysed side may be hyperæsthetic. The paralysed muscles may undergo rapid atrophy.*

Spinal monoplegia.—This condition may result from traumatic injury, or compression of the cord, or from *polio-myelitis anterior acuta*. It is to be distinguished from cerebral and peripheral paralyses, affecting one limb only.

Cerebral monoplegia.—The distinction from cerebral monoplegia is not difficult. In cerebral cases there is no sensory derangement; the paralysed muscles do not undergo rapid atrophy; there are no qualitative electrical alterations. In the later periods, the paralysed muscles, especially the flexors, become rigid. The reflexes

* This of course depends upon the position of the lesion with regard to the nerve nuclei. In cerebral cases rapid atrophy does not occur.

correspond with a cerebral lesion. The history and mode of most of the attacks may be distinctive. Other cerebral symptoms are usually present. Localised epileptiform convulsions, head-ache, vomiting, and optic neuritis, are often observed, for a cerebral monoplegia very frequently depends upon a "coarse" cortical lesion.

Peripheral monoplegia.—This condition may result from traumatic injury, or compression of the large nerve trunks. The sensory functions are profoundly affected; in the earlier stages there is usually pain and hyperæsthesia, later anæsthesia and analgesia occur. In severe cases the paralysed muscles are markedly atrophied. The reaction of degeneration is present in acute cases. The reflexes are diminished or abolished.

A tumour within the spinal canal may produce a monoplegia. Marked sensory disturbances are generally observed, for the posterior nerve roots would, in all probability, be affected by the lesion. Symptoms due to pressure on the cord itself are generally present.

Spinal monoplegia the result of poliomyelitis anterior acuta.—Spinal monoplegia occasionally results from acute destruction of one anterior horn of grey matter. The patient is usually a child. The onset is acute. There is no obvious cause for the attack. The affected muscles are flaccid. Some of them undergo atrophy and present the "reaction of degeneration." The reflexes in the paralysed muscles are diminished or abolished. There are no marked sensory disturbances. Groups of muscles which are functionally related are affected.

Step No. 2.—Supposing that the symptoms indicate disease of the spinal cord, we must next determine whether they are genuine or not.

Studied imposture is seldom met with, but patients frequently exaggerate their symptoms; sometimes deliberately with the intention to deceive; in most cases more or less unconsciously.

Deliberate exaggeration or imposture may be *suspected* when there is no evidence of organic disease, and when there is some obvious inducement for deception. But a diagnosis of feigned disease should never be based on negative evidence alone. Such an opinion is only to be given when it can be supported by some positive fact or facts. Positive evidence of imposture may be forthcoming in the shape of anomalous symptoms; such, for example, as the unnatural distribution of the paralysis, some marked peculiarity in the mode of onset or course of the case; but in the great majority of cases the facts which lead to a definite opinion of imposture are *non-medical*.

Step No. 3.—Having come to the conclusion that the symptoms

are genuine, we must next determine whether they are caused by functional derangement or by organic disease.

The decision is in some cases easy, in others most difficult. Local muscular atrophy, the "reaction of degeneration," true spinal inco-ordination, and paralysis of the sphincters, are proof positive of organic disease; but the great majority of spinal symptoms occur both in organic and functional derangements. In doubtful cases, the differential diagnosis can only be made by taking a comprehensive view of all the facts; by paying particular regard to the mode of development and grouping of the symptoms, and to the general features of the case. The presence or absence of disease in the other parts of the nervous system must be carefully noted. The condition of the other systems and organs must, of course, be observed.

In some cases it is impossible to give a decided opinion at the first visit. We must then be content to make a provisional diagnosis; to await the course of events; and to throw light upon the case by particular modes of treatment (therapeutic diagnosis).

The functional conditions which are liable to be mistaken for organic disease are for the most part characterised by derangement of the motor nerve apparatus. Cases in which the sensory functions are alone perverted, seldom give rise to difficulty. Hysterical paraplegia, paralysis depending upon idea, reflex, malarial, and alcoholic paraplegia, are some of the best marked types.

Hysterical Paraplegia.

Before entering upon the differential diagnosis of hysterical paraplegia it is necessary to insist upon the fact that all cases of paraplegia occurring in hysterical patients are not necessarily hysterical (functional).

Hysteria is frequently associated with organic disease of the nervous system. It is important to remember that the presence of hysteria or a history of hysterical fits is only corroborative evidence, and that a diagnosis of hysterical paraplegia should not be made unless the most scrupulous examination has failed to detect the signs and symptoms of organic disease.

There is nothing distinctive in the condition of the paralysed muscles in cases of hysterical paralysis. In some the loss of motion is incomplete, in others all motor power is abolished. The paralysed muscles may be flaccid. In other cases they are rigid, the reflexes are exaggerated, the ankle clonus is present, and the condition exactly resembles the spastic paraplegia, which results from organic disease. Where the paralysis is of long duration the muscles may become wasted, but there is never local atrophy. The reaction of degeneration is never present.

The condition of the muscles at the upper level of the paralysis must be carefully noted. In cases of spastic paraplegia depending upon a transverse myelitis, the muscles supplied by the affected segment, *i.e.*, the muscles at the upper level of the paralysis, are markedly atrophied (see page 00). In hysterical paraplegia there is no local atrophy at the upper level of the paralysis.*

The mode of onset and course.—In some hysterical cases the onset is gradual; in others sudden. The *immediate* development of spastic rigidity would be distinctive of the hysterical nature of the case, for rigidity the result of organic disease is never developed suddenly. Sudden improvements and relapses are also characteristic of the functional (hysterical) variety.

The condition of the sensory functions.—In hysterical cases sensory disturbances are usually present. All forms of skin sensibility may be abolished. In some cases there is complete insensibility to pain, but sensibility to touch and temperature remains. Dr. Drummond thinks this condition distinctive of hysteria. In others, again, there is hyperæsthesia. According to Duchenne paralysis with abolition of the muscular sensibility is characteristic of hysteria. This opinion is, however, disputed by some recent writers.

The condition of the bladder and rectum.—The sphincters are never completely paralysed in hysterical paraplegia. Retention of urine is common. Spasmodic incontinence also occurs. After a "fit" or emotional disturbance, large quantities of limpid urine of low specific gravity are often discharged.

The age, sex, and general appearance of the patient.—Hysterical paraplegia is usually seen in young women. The peculiar expression of countenance, which Todd called the *facies hysterica*, may be present.

The condition of the uterus and ovaries.—There is often some disturbance of the uterine or ovarian functions.

The history.—A history of previous attacks of paralysis, which have been rapidly recovered from, is very suggestive of functional (hysterical) disease.

Other symptoms and signs of hysteria are generally present, and

* In primary lateral sclerosis there is no local atrophy at the upper level of the paralysis, but that rare condition could hardly be confounded with spastic paraplegia, the result of functional (hysterical) disease. The absence of sensory disturbances and of any affection of the bladder; the age and sex of the patient; the mode of commencement of the attack; and the associated symptoms, are the points to which attention is to be directed in distinguishing these two conditions.

are of great diagnostic value *in those cases in which there is no evidence of an organic lesion.*

Paraplegia depending upon Idea.

Under the term "Paralysis depending upon idea," Dr. Russell Reynolds has described certain cases of paralysis depending upon imagination. In these cases there is no intention to deceive; the patients really believe they are the victims of serious organic disease. Cases of this sort are quite distinct from ordinary cases of hysterical paralysis and from ordinary cases of hypochondriasis. The patients are for the most part of a highly nervous, and often very active mental temperament; their general health is usually below par, but they do not, so far as my limited experience goes, exhibit the usual symptoms of hysteria. The fixed belief that they are paralysed; and the concentrated attention which the affected parts receive, together with the effect which is produced on the mind by such a state of matters, induce functional disturbances which are often of a striking character. Startings, twitchings, and fibrillary tremours occur in the limbs and other parts of the body. Aching muscular (myalgic) pains are common. The heart is easily excited; palpitation is frequent. Exertion or mental excitement is followed by a feeling of exhaustion and fatigue. The patient becomes impressed with the idea that he is unable to do anything; that he is paralysed, &c. There is often sleeplessness and restlessness. The patient wakes up towards the early morning hours, and rises unrefreshed. The stomach may be deranged; constipation is common. On physical examination the reflexes—superficial and deep—are generally found to be exaggerated, the muscles supposed to be paralysed are usually soft and flabby; in chronic cases there may be considerable atrophy, but it is not limited to special muscles or groups of muscles—a point of importance, for, in some cases which have come under my notice, the diagnosis lay between this condition (ideal paralysis) and progressive muscular atrophy. *Sensibility* is not affected. The *bladder* is healthy; the *bowels*, as already mentioned, are usually constipated.

The loss of motor power is never complete, and often presents anomalous characters; for example, a patient, who can neither stand nor walk, will move the legs in any direction when in bed.

The condition often lasts for a long time, it may be years; and is sometimes most difficult to cure.

The diagnosis is to be made by attention to the following points:—

1. *The condition of the paralysed parts.*—There is no positive evidence of organic paralysis

2. *The mental condition and temperament of the patient.*—The fact that the patient's mind is concentrated on his condition; that he is always thinking of his symptoms; examining his limbs, &c.; and that he is thoroughly impressed with the idea that he is the subject of serious organic disease.

3. *The condition of the reflexes.*—The increased reflex excitability, and the fact that it is general, and is not confined to the paralysed parts, is, so far as observation enables me to judge, a diagnostic point of some value.

4. The fact that the startings, jerkings, and fibrillary twitchings are not limited to special muscles, and that the muscles in which they occur do not present any special atrophy.

5. The fact that there is no affection of the bladder or rectum.

6. *The history and progress of the case.*—The fact that the case remains stationary for years, and especially that no marked alterations in the condition of the paralysed parts appear.

In some cases there is a family history of a spinal paralysis. This fact, of course, cuts both ways; for, on the one hand, we know that nerve affections are frequently hereditary; on the other, it must always be remembered that persons of a susceptible nervous temperament, who are brought in contact with disease, are very apt to imagine that they are themselves the subjects of it.

7. *The effects of treatment.*—A favourable opinion, confidently expressed, and appropriate treatment, sometimes effect rapid and remarkable improvement.

Malarial Paraplegia.

Paraplegia sometimes occurs as the result of malarial infection. The pathology of the condition is unknown. The condition is a rare one, even in malarial districts, and no case has come under my personal observation. The characteristic feature of the paralysis is that it is intermittent, and that it occurs at regular intervals, just as the ordinary febrile paroxysms (quotidian, tertian, &c.) do.

The diagnosis is founded upon:—

1. The absence of the signs and symptoms of organic disease.

2. The intermittent character of the paralysis.

3. The fact that the patient has been exposed to malaria, and that the paralysis is cured by anti-malarial remedies (quinine).

Reflex Paraplegia.

Paraplegia occasionally results from peripheral irritation acting reflexly. The source of the irritation is usually in the bladder or urethra.

Brown-Séguar supposes that the immediate cause of the paralysis is anæmia of the cord, and that the anæmia is due to spasmodic contraction of the vessels of the cord produced reflexly. In many cases of so-called reflex (urinary) paraplegia there are organic changes in the cord of an inflammatory character. In some paraplegia, probably the majority, the inflammatory changes result from direct extension to the cord of similar conditions in the distant (peripheral) parts. The extension may take place along the nerves (neuritis ascendens) or through the blood-vessels.

In some cases organic lesions have been found in the cord, when the intermediate parts have appeared to be healthy, and it is supposed by Benedict and others that organic spinal lesions can actually be induced reflexly, independently of direct extension.

The cases in which there is an organic lesion of the cord cannot correctly be termed *reflex*, if we understand, as I do by that term, *a functional paralysis due to peripheral irritation acting reflexly*.

True reflex paralysis is undoubtedly rare, but that it does occasionally occur in man seems beyond dispute; and that it can be induced in the lower animals seems proved by the remarkable chloroform experiments which Brown-Séguar has lately published. The diagnosis of reflex paralysis is always hazardous, and should only be made when:

Firstly. There is no evidence of organic disease.

Secondly. There is a manifest source of peripheral irritation.

Thirdly and chiefly. The removal of that irritation is followed by the disappearance of the paralysis.

Alcoholic Paraplegia.—Paraplegia is sometimes produced by alcoholic excess. The paralysis is probably due to some alteration in the vaso-motor condition of the cord. There is no evidence of organic disease, but it is often difficult to give a positive opinion at the first visit. The diagnosis soon declares itself, for alcoholic paraplegia is only temporary.*

Anæmic paraplegia.—Paraplegia may also result from sudden stoppage of the blood supply to the lower end of the cord. This condition may result from plugging of the abdominal aorta, an accident which occurs in the course of some abdominal aneurisms.

In some cases of aortic regurgitation, weakness in the lower extremities—never, so far as I know, amounting to true paralysis—is seen. The motor weakness probably results from anæmia of the lumbar region of the cord. In his admirable Croonian Lectures,

* Intemperance seems also to be a cause of myelitis. The paralysis will then, of course, be permanent.

Dr. Moxon has directed the attention of the profession to the difficulties under which the lower end of the cord receives its blood supply. These difficulties are of course increased in aortic regurgitation.

Step No. 4.—Having come to the conclusion that the symptoms are due to organic disease of the cord, the final step in the diagnosis is to determine the exact nature of the affection which is present. We must not only give a name to the disease, but must endeavour to determine the special features which it presents in each individual case.

We first decide whether the lesion is *extra-spinal* or *intra-spinal*. This point is of course determined by the nature of the symptoms.

The *characteristic* symptoms of an *extra-spinal* lesion result as we have previously seen (see), from irritation of the sensory nerves in the membranes and periosteum, and from pressure on the anterior and posterior nerve roots. They consist of:—pain referred to the region of the spinal column and increased on movement of the spine; eccentric pains, hyperæsthesia and anæsthesia in the sensitive areas of the compressed posterior roots; spasms and paralysis in the areas of the compressed anterior roots.

When these symptoms are present we may conclude that the spinal symptoms are secondary, and that the primary lesion is extra-spinal.

Having determined that the lesion is an *extra-spinal* one, we must next endeavour to ascertain its pathological character. In seeking to decide this question, we must regard—

1. *The history.*—The duration of the case, whether acute or chronic, is of great importance. Where the symptoms develop suddenly, we have to deal with a displacement of the bones, or with a hæmorrhage into the spinal canal. Where the onset is rapid, but not instantaneous, the case is probably acute meningitis, but it may be displacement of the vertebræ. In chronic cases, the symptoms may result from chronic meningitis, slow compression of the cord from disease of the bones or tumours within the spinal canal.

The supposed cause of the attack should always be enquired into. A history of traumatic injury is especially important.

2. *The condition of the spinal column.*—In fractures and displacements of the vertebræ, either from violence or disease, we can often, but not always, detect irregularities in the spinal column. Pain and tenderness on percussion and on rotation of the vertebræ are valuable evidence of bone disease. In some cases of vertebral cancer, a tumour or enlargement of the bones can be detected.

3. *The associated diseased conditions* are often distinctive. In a case of slow compression of the cord, the presence of malignant disease in the liver or pelvis would point to similar disease within the spinal canal.

4. *The family history* may also give some information. In a case of meningitis, without obvious cause, a strong family tendency to scrofula would suggest the tubercular character of the lesion.

Where the lesion is *intra-spinal* we must first decide whether we have to do with a "system disease" or an "indiscriminate lesion." By this means we at once narrow the enquiry.

As the result of experience we know that certain morbid conditions affect certain physiological tracts. Where, for example, the symptoms show that the lesion is *confined* to the anterior cornu, we know that we have to deal either with acute or sub-acute inflammation (*polio-myelitis anterior acuta or sub-acuta*), or with the degenerative process which constitutes the pathological substratum of progressive muscular atrophy.

We ascertain then the *mode of onset* of the attack. When the lesion is *confined* to the region of the anterior cornu, and when the onset is acute, we at once decide in favour of *polio-myelitis anterior acuta*. When the onset is very gradual the probability is that we have to deal with the typical form of progressive muscular atrophy. To be quite certain we must carefully ascertain the *mode of development* of the symptoms, for there are two forms of this affection; a typical form, which commences in the great majority of cases in the upper extremity and usually first affects the small muscles of the hand; and an irregular form which first affects the muscles of the trunk or lower extremity. The typical form undoubtedly results from slow destruction of the motor nerve cells of the anterior cornu. The irregular form is supposed by some observers to result from a primary lesion of the muscles.

It is always advisable to *check* the diagnosis by observing the mode of development of the attack and the exact character of the symptoms. In locomotor ataxy, for example, the motor inco-ordination is almost invariably preceded by lightning pains. Certain eye symptoms are also very frequent in the early stage of that disease. Spinal inco-ordination occurring *per se*, without lightning pains or eye symptoms, would probably be due to some other morbid process than the extremely chronic lesion, which constitutes the anatomical substratum of locomotor ataxy.

The pathological character of indiscriminate lesions is to be determined by regarding:—

1. *The mode of onset*.—*Sudden* paralysis is due to a vascular lesion such as hæmorrhage, embolism, &c. *Rapid* but not instan-

taneous lesions may be vascular, but are usually inflammatory. *Chronic* lesions may be due to chronic inflammation, simple softening, or some degenerative process. Under the last head we may include the chronic process, which I have previously described as sclerosis, commencing in the connective tissue (interstitial sclerosis). In rare cases new formations arise within the spinal cord itself. The symptoms usually develop slowly. In some cases acute symptoms, due to hæmorrhage or inflammation around the growth, occur.

2. *The associated diseased conditions.*—In myelitis, for example, the presence of associated syphilitic symptoms would suggest a “specific” character for the cord lesion.

3. *The effects of treatment* may also afford information as to the nature of the morbid process, especially in syphilitic cases.

4. *The mode of grouping of the symptoms.*—In some affections the grouping of the symptoms is quite characteristic. Having named the disease, we know as the result of experience the nature of the morbid process into which we have to deal. In cerebro-spinal sclerosis, for instance, the clinical picture is usually quite distinct; and we know that the anatomical substratum of that affection is an interstitial sclerosis of a very chronic and incurable character.

Briefly, then, the plan of the diagnosis is as follows:—

Step No. 1.—Make certain that the symptoms do not depend upon a cerebral or a peripheral lesion.

Step No. 2.—Where the symptoms indicate disease of the spinal cord, determine whether they are genuine or not.

Step No. 3.—Where the symptoms are genuine, ascertain whether they are due to functional derangement or organic disease.

Step No. 4.—Having decided that symptoms are due to organic disease, next determine—

a. Whether the lesion is *extra-medullary* or *intra-medullary*.

b. If *extra-medullary*, the pathological character of the morbid process.

c. If *intra-medullary*, whether it is a system or an indiscriminate lesion, and the pathological character of the morbid process.



CONTENTS.

DEATHS OF MEMBERS.

PREVALENT DISEASES OF THE DISTRICT.

ANTI-VIVISECTION ACTS.

PATHOLOGICAL SPECIMENS.

EXHIBITION OF PATIENTS.

ON THE CAUSES, PROPHYLAXES, AND TREATMENT
OF POST PARTUM HÆMORRHAGES.

By J. F. LE PAGE, L.R.C.P.

CHRONIC BRONCHIAL CATARRH.

By C. GIBSON, M.D.

MEMBRANOUS POLYPUS OF THE CERVIX UTERI.

By C. GIBSON, M.D.

THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF
THE SPINAL CORD.—(PART III.—*Concluded.*)

By BYROM BRAMWELL, M.D.